

國立宜蘭大學 103(2) 機械與機電工程學系 一年級 微積分二 期中考試

日期： 104 年 4 月 21 日

時間： 19:20 - 20:20

班級：

學號：

姓名：

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分	

1 寫出單位圓內接正 n 邊形的面積公式

$$2 \sum_{k=1}^7 (-2k) =$$

$$3. \int_{-1}^1 (2 - |x|) dx =$$

$$4. \int_{-\sqrt{2}}^1 \left(\frac{u^7}{2} - \frac{1}{u^5} \right) du =$$

$$5. \int \frac{dx}{\sqrt{x}(1+\sqrt{x})^2} =$$

$$6. \int_0^1 (4y - y^2 + 4y^3 + 1)^{-2/3} (12y^2 - 2y + 4) dy =$$

$$7. \int_{\pi/2}^0 \frac{1 + \cos 2\theta}{2} d\theta =$$

$$8. \int \frac{dx}{x \ln x} =$$

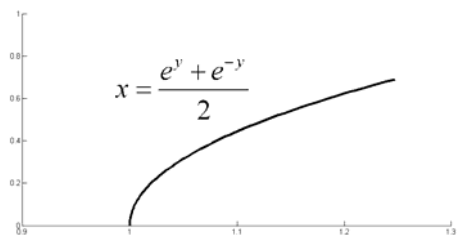
9 Find the area of the region enclosed by $y^2 = 4x$ and $y = 4x - 2$

10 Find the volume of the solid generated by revolving the region bounded by $y = \sqrt{9 - x^2}$ and $y = 0$ about the x-axis.

11 Find the volume of the solid generated by revolving the region bounded by $y = \sqrt{x}$, $y = 0$ and $y = x - 2$ about the x-axis.

12 Find the length of the curve $y = \int_0^x \tan t dt$, $0 \leq x \leq \pi/6$

13 Find the area of surface generated by revolving the curve $x = (e^y + e^{-y})/2$, $0 \leq y \leq \ln 2$ about y-axis



14 Find the center of mass of a thin plate of constant density δ covering the region shown below

